Vol. XI. No. 3. 9-MAR 1933 1923. March 1933

Health

A Journal Devoted to Healthful Living

Edited By Dr. U. Rama Rau & U. Krishna Rau, M.B.B.S.

Published in
ENGLISH, TAMIL, TELUGU AND CANARESE.

Annual Subscription for any edition Rs. 1-8. Foreign Rs. 2. Post paid.
Editorial and Publishing Offices :—323, Thambu Chetty Street, George Town, Madras.

EDITORIAL

THE MAHAMAKAM FESTIVAL AT KUMBAKONAM.

India is a land of feasts and festivals. Not a day passes without some feast or festival, mirth or merry-making in every Hindu home, even in these days of woeful depression and abject poverty and acute indebtedness of the masses. The reason for the strict observance of these festivals is the untold blessings of the Gods which it is said to bring in its train and the supposed attainment of the soul to the seat of eternal Bliss called Heaven. Thus, these feasts and festivals are interwoven with spirituality and religion, the how, the why and the wherefore of which, the god-fearing Hindu dare not question. But these feasts and festivals have their own hygienic background and the Hindu seers of yore thought that the best way of enforcing sanitary and hygienic principles on a credulous and illiterate population would be to give a religious colouring to the hidden health maxims, which these feasts and festivals inculcate. They prevented all questioning on pain of incurring the wrath of God, lest, shorn of their Godliness, their full effect might be lost. Taking some of the South Indian feasts and festivals and commencing from January of each year, you have the Pongal feast for three or four days that month. We have already in one of our past issues dwelt at length on the hygienic and sanitary importance of this feast and we need not therefore reiterate it here. In the month of February, there is the Sivarathri feast, one whole day of fasting and prayer to the last of the Hindu Trinity—Lord Siva. Fasting purifies the body and purges it of all its impurities, while prayer purifies the mind and elevates the soul. In March, you have the Telugu New Year's Day and in April, the Tamil New Year's Day, which are days of rejoicing, in expectancy of

better and happier days to follow in the next twelve months and in utter forgetfulness of the past. May, June and July belong to what is called the 'Vasantha Ruthu', when all the air is sweet and the sun is bright, when flowers blossom and the agriculturists are free from work. These months are set apart for festivals, marriages and pilgrimages. In August comes the Avani Avittam, which is the "All Saints Day" of the Hindus, when tribute is paid to the departed saints. In September there is 'The All-Souls Day' when offerings are given to the departed souls on the Mahalaya Amavasya day by one and all, without exception. Ayuda-Puja also comes off that month, which is nothing but an All-India Exhibition of the arts, crafts and industries of India. This has a highly educative value. In October, you have Deepavali; a general morning-oil-bath is indicated on that day and the wearing of new clothes. An oil-bath and change of clothes at least once a year to those who cannot frequently afford them are welcome hygienic measures. In November, which is a rainy month, and consequently a dark and gloomy month, people are enjoined to lit more lights in their homes than usual and on the Karthikai day especially, to illumine every nook and corner of their houses. The hygienic value of this is apparent, viz., to ward off danger from disease-carrying insects. In December, you have the 'Vaikunta Ekadesi' which is a day of complete fasting for all sections of the Hindus. This, in brief, is the hygienic significance of some of the Hindu feasts and festivals that are now observed, though alas! only in form.

The Mahamakam festival at Kumbakonam comes off once in 12 years. There are 12 great rivers in India, viz., the Ganges, the Narmada, the Saraswati, the Yamuna or the Jumna, the Godavari, the Krishna, the Kaveri, the Bhima, the Tambaraparni, the Tungabhadra, the Indus, and the Tapti, whose waters are held to be sacred, and confer on the bathers thereof, freedom from disease and longevity of life. These are something like the continental spas in Europe, whose waters have health—bestowing and health-recuperating properties. Our ancients found the waters of these rivers having healing effects and so they enjoined a bath once a year in turn in these rivers on the Mahamakam day, so that people may reap the benefits of bath in these Indian Spas. The turn for Cauvery comes this year on the 10th of March '33 and nearly seven lakhs of people are expected to congregate at Kumbakonam on that day. In this connection, we may remind our readers, that Col. King, late Sanitary Commissioner for Madras, experimented on the Cauvery waters with cholera fæces and found that the water has bactericidal properities, which kill the cholera germs immediately and the water is safe for drinking purposes, after it passes the 18th mile. Similar experiments have recently been made on the Ganges water and the pure condition of that water for several years after it has been bottled up is said to be due to the presence of some bactericidal agent, still unknown to and undiscovered by modern scientific savants. The purity of the water of both the Ganges and the Cauvery has thus been scientifically established and there is no doubt that a bath in

the Cauvery, by those who have had hitherto no occasion to take, will prove beneficial to their health.

But this festival has its attendant evils. Kumbakonam is a small town, where nearly one and half times the population of Madras will have to be accommodated for nearly ten days on this occasion. There is the risk of out-break of cholera, if the water-supply is not protected and if water from other than protected sources is drunk; there is the risk of dysentery and diarrhœ by eating improper and contaminated foods and at untimely hours, and risk of all other diseases due to over-crowding, nuisances, insanitation and foul air. There is also the risk of accidents, such as drowning etc. The Kumbakonam Municipality is taking all necessary precautions to ensure the health and comfort of the pilgrims. But there is an obvious duty to be performed by each pilgrim in maintaining a high level of sanitation during the festival and unless his or her active co-operation is assured, serious disaster will result. The Director of Public Health, Madras, has in his recent communication to the press, enumerated the duties which the pilgrims have to observe, and for the benefit of our readers, we shall quote them here in extenso :—

" Do not resort for your drinking water-supply to the rivers or other polluted water sources. These are dangerous. Help yourself by drinking the protected water either from the taps, tube wells, wells fitted with Rotary pumps or wells with special buckets. [*It is always safe to boil the water and drink (Ed. H.).*]

An adequate number of latrines and urinals have been provided in different parts of the town at convenient centres. Make use of these sanitary conveniences and do not commit nuisances indiscriminately in open spaces or defile the banks of rivers and tanks, for your health will otherwise be seriously jeopardised.

Choose for your accommodation at the festival, the pilgrim sheds provided by the Mahamakam Committee as these are supplied with pure water, wholesome food, efficient conservancy, and lighting ; otherwise, only stay in certified lodging houses.

The Municipality will sell good and wholesome food at a cheap rate prepared under proper supervision. This food will be sold in packets at different centres. Buy it and eat it.

Immediately report any case of suspicious diarrhoea and vomiting to the health authorities for this may be cholera. Necessary steps can then be taken at once to prevent the spread of the disease.

If after the festival, a member of your party develops cholera en route or at the village, report this at once to the health authorities ; for they will help you.

Get yourself and your family inoculated against cholera before leaving for the festival centre. This can be done at the hospitals and dispensaries of your district free of charge and it protects against this killing disease.

Remember one single case of cholera is sufficient to cause the loss of thousands of lives. Do not be the cause of this catastrophe ; for human life is precious not only to yourself but to your country".

We hope these instructions will not fall on deaf ears, and by a strict observance of them, intending pilgrims will, we are sure, return to their homes, with redoubled vigour and health, purified in body, mind and soul, after the sacred bath in that holy river, on that memorable day.

MUSIC AND HEALTH.

BY

DR. EDWARD PODOLSKY, M. D.,

Brooklyn New York.

(Continued from page 9 Vol. XI, No. 1, January 33 Issue of "Health").

George III of England also was subjected to terrible fits of melancholia, and the only solace he received was from music. The king was well aware of the soothing effect on his nerves and mind, and would often ask for music when he sensed one of his fits of melancholia coming on.

It was toward the end of the 18th century that serious efforts to evaluate the effects of music on the human body were initiated. Among the first was Dr. Brocklesby who conducted a series of interesting experiments on "a child not two years old, born of musical parents, who was one day remarkable for mirth and good humour upon hearing sprightly airs of music; this gave occasion to the father and Mr. Stanley to try the effects of different measures, when they had raised the infant's spirits very high by these means. But as the chromatic and graver strains began, the child grew melancholy and sad, which temper was removed as soon as the pleasanter music was played. Thus as I am informed, they could solely by this art, raise and allay joy and grief by turns in the infant's mind."

Thousands of practical applications of music therapy were made during the past two centuries. Thus, the Guild of St. Cecilia, toward the end of the last century and the beginning of the present organized curative concerts for asylums and hospitals with marvellous results. About the same time Dr. Bechinsky, a Russian physician of note, attended a three year old child who suffered from sleeplessness due to night terrors. He advised the child's mother to play one of Chopin's waltzes, and the effect is said to have been immediate and satisfactory.

In France Bourdois dela Motte attended a young woman who for eighteen days had been suffering from a severe fever; her pulse was also extremly feeble. On leaving the sick room one day he saw a harp in another room of the house, and it occurred to him to try the effects of music. A harpist was sent for who played for half an hour without any visible results being noticed in the state of the patient. Music was persisted in, however, and ten minutes later the patient began to breathe easier. The pulse became stronger, and after a hæmorrhage from the nose she began to speak and became convalescent after a few days.

In 1893 Ewing Hunter, of Helenburgh, N. B., found that soft music successfully reduced high temperatures

in several cases of fever, the greatest reduction obtained being two degrees 101 to 99. Wimmer a few years earlier described the results of experiments with music conducted at an insane asylum. The piano was played for half an hour to 1,400 insane women. It was found that all responded to the rhythm; in some cases the pulse rate rose; others became restless and beat time. Melody without rhythm had no effect at all when it happened to be an air which awakened memories and their associated emotions. With slow music the worst cases were soothed and even sent to sleep. After several experiments it was noted that all showed improvement.

In 1891 *The Lancet* contained several brief notes on the use of music, advocating its value as a counter attraction which dulled the acute perception of pain and aided cases of fatigue and worry and certain mental conditions. Dr. Hunter, a year later, proved the benefit of music in his hospital wards, especially for sufferers from pain and insomnia. After a trial of various instruments he considered the lyre and harp yielding the best results. In 1899 Dr. Herbert Dixon described how he had tested the effects of music on a number of his patients. He found that quick, lively music suited those with slow circulation and lowered vitality or melancholia; whereas soft and soothing music aided night-terrors and delerium.

Xavier Vernier in 1903 proved that music can dispel fatigue and act as a stimulus for more work. A greater amount of work was accomplished during the playing of certain types of music than others; allegre, maestro and militaire, largo and andante movements were found to be accompanied by more production in work than under the allegretto movement.

At about the same time when it was realised that music was such a potent factor in human health, theories began to crop up which made an attempt to explain how this influence was exerted. Picus Mirandalus explained that music cured disease by moving the spirits to act on the soul and the body. Coelius Aurenlianus maintained that music charmed the diseased part, causing it to tremble and palpitate.

P. J. Burette, who made a searching inquiry into the work done by the ancient in relation to music, concluded that, by repeated shocks given by atmospheric vibrations to the nerves and other parts of the body, music was instrumental in effecting a cure. He held that it worked on the afflicted organism by pleasing the ear, thereby diverting the attention from indisposing symptoms; then, by violently vibrating the nerves, it moved the "humor" and the "animal spirits," and broke down malign obstructions.

Richard Browne accounted for the influence of music by the following theory. "It is evident that, if the strings of the fiddle be struck swiftly and boldly, the vibrations of the air must of necessity be short and bold, whereby the nerves will be briskly agitated and give a brisk and lively pleasure to the mind, which by sympathy will invigorate the whole machine. On the contrary, by soft slow languishing strokes of the fiddle, the nerves will be so finely and delicately touched, and the sensations so ravished, as to

cause the spirits to flow back in gentle undulations......And thus it is evident that an allegro, by short, quick, and brisk impressions upon the auditory nerves fills the soul with gay and cheerful sensations."

In the "History of the Royal Academy of Sciences, France," M. de Mairon accounted for the influence of music is this manner: "It is to the mechanical involuntary connection between the organs of hearing and consonances excited in the outward air joined to the rapid communication of the vibrations of these organs of the nervous system, that we owe the cure of spasmodic fevers, attended with delerium and convulsions."

In 1803, Dr. Jean L. Dessessarts read a paper before the National Institute of France, in which he gave his theories of the mechanism of musical stimuli. He stated: "As the nervous system governs the motions of solids, and controls the action of these motions on fluids, it ought to be understood that the nerves when moved, disturbed, or agitated, communicate their state to the parts which they penetrate; they thereby set them to work which belong to their organization, and give them the power of producing in the various humours that fluidity, that course, which brings on and accomplishes a favourable crisis. Music, by imparting to the nerves their life, which in certain maladies is suspended or choked, restores the functions of vitality to vessels and tissues. It can, therefore, have a powerful influence on the secretions and excretions, and become a constant means of healing maladies that are called humoral, gastric, putrid or malignant."

Hector Chomet, one of the most assiduous of French investigators into the effects of musical stimuli, advanced an interesting mechanical theory. He supposed space to be charged with an imponderable fluid, which he named *sound* or *tone ether*, whose existence he assumed was everywhere, like the ether of the light and heat theory. It was also always present, active or dormant like electricity. He said that living beings, and, to a certain extent, inanimate objects, could be influenced by this imponderable tone ether, and that this sympathy or antipathy to the ether was constantly manifested, producing most curious effects. Again, this imponderable fluid was capable of modifying and changing its character in many ways, as in the case of light, heat, and electricity. Under certain circumstances this combination of sound has been called music. When we produce this music by mechanical means, we make use of the ever present but impalpable volume of sound. In other words, we put ourselves in immediate communication with a new force which has a vast influence, for either good or evil, over the human body.

Somewhat along the same lines was the theory advocated by J. H. Hausen. His belief was that the tone ether permeated the whole animal economy and was present in every tissue, finding its way into the lungs and thence being conveyed by the blood to the remotest ramifications of the system.

In his medical lectures, Dr. Leake propounded the theory that music exerted its salutary effects by exciting peculiar sensations on the nerves of the ear, which in turn, communicate

with the brain and general nervous system. "Since the inordinate passions of the mind all make their first disagreeable impressions on these parts and occasion low spirits and melancholy," Dr. Leake thought, "that no remedy could equal that of music, which excites a contrary, pleasurable sensation and acts immediately on the same organs."

Of the more recent theories, the one presented by J. T. R. Davison is of interest. "Music exercises its influence over the human organism in the relief of pain. Pain is a special condition of the sensorium felt as distress and is due to special stimulation, which travelling from the periphery by other routes, reaches the sensorium and there gives rise to sensation felt as pleasure. In the sensorium these two sensations have to struggle for existence as they cannot exist simultaneously, and whichever of the two adopts itself more comfortably to the reigning conditions of the central organ will gain the day. Where the sensation is that of pleasure, pain will cease to exist, but as the conditions of the sensorium are not identical in any two cases, music will sometimes be powerless to dislodge pain from its stronghold."

(To be continued)

HOW CAN TUBERCULOSIS BE PREVENTED*

BY

RAO BAHADUR DR. M. KESAVA PAI, O.B.E., M.D.

Superintendent, Tuberculosis Institute, Madras.

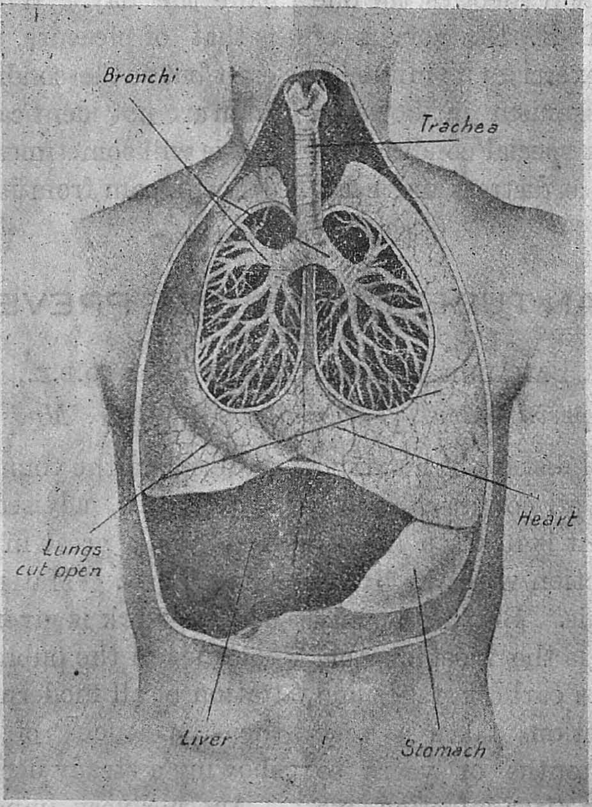
BEING a universal disease of mankind prevalent in all countries, races and communities, it is next to impossible to avoid infection with the living germ of tuberculosis. But as, luckily for us, the disease is the most curable of all diseases in its earliest stages and unlike other infections takes a very long time i. e. months or years to produce the disease after infection, we have the means in our power to prevent its onset.

Tuberculosis infection almost invariably takes place in infancy and childhood. If therefore the infant and the growing child are well looked after and properly fed, the occurrence of tuberculosis in later life will be minimized. The importance of maternity and child-welfare centres where the pregnant mother and the young baby are properly examined, advised and attended to, is especially great in the prevention of tuberculosis. Maternity and child-welfare work is given the highest importance in the public health administration of all modern countries where the incidence of tuberculosis is showing a steady decline.

Another very important anti-tuberculosis measure is early detection of the disease. There is a very large number of children and adults in all communities who, due to a combination of causes especially malnutrition, general ill-health and attacks of other chronic diseases like malaria, hookworm disease etc., get their resistance against tuberculosis lessened with the result that the latent infection in them

* Being a copy of Radio Lectures delivered in March and April last and specially sent to Health for publication;

begins to show itself by active signs. Fatigue, loss of appetite, languor, weakness, slight feverishness especially in the evening with burning in the eyes, hands and feet, and perhaps a recurring cold with cough are all premonitory signs of the onset of the disease in its active form. If early diagnosis is made of the disease at this stage the vast majority of the subjects with proper attention to diet, open air andrest can get over the disease and recover their normal health. It is here that the tuberculosis institute takes its share in the prevention of tuberculosis. If all children and adults who feel run down generally would take the trouble of getting themselves examined at a tuberculosis institute where the special staff could detect the disease in its very early stage, the progress of the complaint into its more advanced stages could be prevented and the incidence of tuberculosis considerably lessened.



The Lungs—the chief centre of tuberculous infection.

Indiscriminate spitting has been highly regarded as one of the main factors in the spread of tuberculosis. The living germs which exist in the phlegm of the consumptive in millions are carried in the dust raised within houses by dry sweeping and in the roads by motor and other traffic and inhaled or swallowed by healthy-people. Spitting is prohibited by law in western countries, a fine being levied as a penalty for spitting in public places and in public conveyances. People whether tuberculous or otherwise should not spit indiscriminately but use spittoons or cuspidors which are now placed in all public places and offices for the use of the public. The contents of these are destroyed by burning or disinfection, thereby preventing infection of healthy persons.

In all households, governesses andayahs and domestic servants should be carefully selected as children are very apt to catch infection from them if they have the active and open disease in them. The presence of tuberculosis carriers, usually old persons who suffer from chronic cough wrongly diagnosed as as ordinary bronchitis but is really a chronic type of consumption, should be detected by expert examination by a proper doctor and all such people should be segregated.

Flies play an important part in spreading tuberculosis, as they are fond of feeding on sputum and later on contaminating food material on which they sit and feed. Every attempt should therefore be made to deal with the fly pest with proper precautions regarding cleanliness in and around houses.

The greatest care and attention

Mouth is the gateway for all disease germs to enter. Hence keep your mouths always clean and shut.

should be bestowed on the ventilation of the living and sleeping rooms of houses. In a hot country like ours, sleeping in the open air on verandahs and in rooms with the windows kept open day and night at all seasons of the year is essential. People should not cover their faces with the blanket or wrapper when sleeping and crowding in the bed room should be avoided. Personal cleanliness, especially cleanliness of the mouth and attention to the teeth is of the utmost importance; more so in children than in adults. The tooth brush should be used in the right manner for cleaning the teeth without injuring the gums.

More important than most other preventives is the adjustment of the diet. Tuberculosis is pre-eminently a nutritional disease and results from an insufficient or wrongly balanced diet. Rice, especially milled and polished rice available nowadays, is a very deficient food. There must be a proper amount of protein like eggs, milk, meat or fish, of carbo-hydrate and fat contained in rice, wheat, butter, ghee, oil etc., and of vitamines as those naturally present in vegetables, fruits, cereals, milk, butter and so on. The diet of Southern India

is poorer than that of Northern India as it consists mostly of rice. Wheat and ragi are far more nourishing and sustaining than rice and are always available in most places at a cheap price. If wheat and ragi are substituted to a great extent for rice, if a proper amount of dhall, meat, egg or fish or milk be included and fresh vegetables and fruits also find a place in the daily diet, the nutrition of the body would be properly maintained and tuberculosis prevented. In Southern India, therefore, people will considerably improve their health and physique if they could modify their rice diet in such a way as to include the more nourishing materials like wheat, ragi and nuts in their daily dietary along with fruits and vegetables.

ARTIFICIAL FEEDING OF INFANTS.

BY

DR. G. L. SAXONA, M.R.A.S.,

Medical Officer, Fort Dispensary, Partabgarh City (Oudh.)

The general principles concerning the breast feeding of infants were discussed by me in my article published in the Special Number, January 1932 of 'Health'. In a subsequent contribution published in the June Number of the same journal, I dealt with 'Variations in Human Milk', and in the following few lines, I propose to deal with the Artificial Feeding of Infants, and thereby bring to a close the important subject of Infant Feeding.

When the mother is unable to suckle her infant, the most easily available and very often the best substitute for breast feeding is cow's milk. But as is well known cow's milk differs in no small degree from human milk, and hence requires modification to adapt it to the needs of the infant. To carry out this modification intelligently, some knowledge of the composition of cow's and human milk is essential, and therefore, the average proportions of the different constituents of the two milks is given hereunder :—

COW'S MILK.			HUMAN MILK.		
Proteids—					
Casein—	3.25	4·0%	Casein—	.6	2.0%
Lactalbumin	.75		Lactalbumin—	1.4	
Fats ...	3.5%		...	3.5%	
Sugar ...	4.0%		...	7.0%	
Salts ...	.7%		...	.2%	
Water...	87.8%		...	87.3%	

It will appear from the above analysis that the chief differences in the composition are the much larger proportion of proteids and much smaller proportion of sugar in cow's milk. The proteids show another marked difference in this that while in human milk they consist chiefly of lactalbumin, in cow's milk they consist chiefly of casein. The practical significance of this difference can be readily demonstrated if samples of the two kinds of milk are taken in two test tubes and some weak hydrochloric acid is added. Large solid masses of curd are at once formed in the test tube

containing cow's milk, while only very fine shreds of curd are seen floating in the other tube. Similar changes occur in the stomach. Another difference is the sterility of human milk in contrast with the large number of germs present in the cow's milk as it reaches the consumer.

Modification of cow's milk.—Now it is obvious that in order to bring the percentage of proteids to the standard of human milk, some dilution of the cow's milk is necessary. For this purpose many diluents are available. Plain water is the simplest and most easily available. It not only reduces the percentage of proteids, but also materially reduces the size of the curd. Barley water is also often used for this purpose, and there is no doubt that some infants will digest milk diluted with plain water. On the other hand barley water, particularly in the earlier months of infancy, gives rise to flatulence, colic and occasionally diarrhoea. Rice water and oat-meal water are also sometimes used in the same way. Rice water is useful where there is a tendency to diarrhoea; while oatmeal water, containing as it does less starch than barley water, agrees where latter has failed.

Lime water may often be used with advantage instead of or in addition to plain water. It not only reduces the proportion of proteids but also definitely diminishes the size and firmness of the curd, and thus undoubtedly increases the digestibility of the cow's milk. Lime water should be used in the proportion of one table spoonful to a three ounce mixture of milk and water, and should be preferred as a diluent in cases of diarrhoea.

It will be seen that the addition of an equal quantity of any of the abovementioned diluents will certainly bring the proportion of proteids to the standard of human milk but the relative proportion of casein and albulactin remains exactly as before, so that casein is still much more than in human milk. Experience goes to show that it is this excess of casein and the large solid curd resulting therefrom which is the chief difficulty in the use of the cow's milk for infants; and in many cases, an infant will not digest cow's milk until the dilution is carried so far that the casein is reduced to almost the same percentage as in human milk, *i. e.* the cow's milk has been diluted with three or even four times its quantity of the diluent.

It will be seen from the figures given below that whatever dilution is used, all the other constituents of the milk are also diluted at the same time.

Thus the percentage of fat which was previously the same as in human milk becomes too low and the already insufficient proportion of sugar becomes still less:—

Cow's milk diluted with an equal quantity of water.

Proteids :—

Casein	1.63	2.0%
Lactalbumin	.37	
Fat		1.75%
Sugar		2.0%

In order, therefore, to bring the cow's milk to the standard of human milk, it is not only necessary to dilute it to reduce the percentage of proteids, but fat and sugar should also be added to it.

Addition of fat.—The supply of a proper proportion of fat is a matter of

greatest importance in the feeding of infants. One of the commonest faults in infant feeding is the use of food containing too little fat, and many cases of chronic constipation, disorders of nutrition and rickets are due to this deficiency.

Fat can be supplied by means of cream, but it is very difficult to get it. In the first place, cream containing known percentage of fat cannot be obtained, secondly there is the difficulty of obtaining it fresh, and the last but not the least is its prohibitive cost for the poor. A simple plan consists in allowing the milk to stand in a jug for an hour or so, and then without shaking pour, off the top half to be used in preparing the infant's food. A valuable increase of fat is obtained in this way. Where even this is not possible, the milk should be given with the least possible dilution consistent with the digestion of casein and if necessary the deficiency of fat should be made good by the administration of small doses of cod liver oil.

Addition of Sugar.—Whatever strength of cow's milk is used, the addition of sugar is necessary to bring the proportion to the standard of human milk. For this purpose milk, sugar is preferable to cane, sugar but the latter is cheap and is commonly used and serves the purpose equally well. One level tea spoonful of milk sugar gives a proportion of 5% of sugar in a three ounce mixture. Thus a three ounce mixture of equal parts of milk and water already contains 2% sugar, and the addition of a tea spoonful of milk sugar will raise the percentage to 7%.

The proportion of fat and sugar which are required varies very little at any period during the first year of life, the proportion of proteids being the chief difficultv. These proportions can be approximately obtained by diluting the milk according to the following table :—

	Milk	Water
1st week	1	3 parts
2nd week to 6th week	1	2 ,,
6th ,, ,, 3rd month	2	3 ,,
3rd month to 6th month	1	1 ,,
6th ,, ,, 8th ,,	2	1 ,,
8th ,, ,, 12th ,,	3	1 ,,

If the milk is diluted in this way and a tea-spoonful of centrifugalised cream (48%) and a tea-spoonful of sugar is added to each feed, the mixture will give satisfactory proportions.

Boiling, Pasteurisation and Sterilisation of Milk.—Cow's milk and cream as they reach the consumer contain a large number of germs and it has been proved beyond doubt that some acute diseases such as Typhoid fever and Diphtheria and occasionally Tuberculosis have been conveyed by such milk. Another much commoner and more disastrous infection produced by milk is Summer Diarrhœa, which is responsible for a terrible mortality amongst infants.

For the prevention of these risks. three methods are available: (1) Boiling is at once the simplest and the best method. Boiling means simply heating the milk just to the boiling point and then at once stopping the process. It is also necessary to stir the milk frequently so that the whole of it may be brought to the boiling point. After boiling, the mixture should be put at once in clean bottles with tight fitting stoppers and should

be rapidly cooled in cold water or on ice, and then kept in some cool place until required. (2) Pasteurisation of milk consists in keeping it at a temprature of 155-165° F for 20 to 30 minutes and is done by means of sterilizers. This method certainly renders the milk innocuous, but is not practicable everywhere. (3) Sterilisation is done by subjecting the milk to prolonged boiling in the usual way for an hour or more. This renders the milk completely sterile, but prolonged boiling produces some changes in the milk whereby it loses its nutritive value and infants fed on such milk for some time show signs of malnutrition and cachexia.

Milk of Animals other than the Cow:—Babies are not infrequently met with who fail to thrive on cow's milk and in such cases some other method of feeding has to be found. Goat's milk is almost as rich in casein as cow's milk and is richer in fat. Observations have shown that the curd given by goat's milk is much more finely divided than that given by cow's milk and in some cases where cow's milk has failed, goat's milk suits admirably. Some infants thrive excellently on goat's milk which is worth a trial. It requires dilution in the same way as cow's milk. On the other hand, ass's milk is much poorer than cow's milk, both in proteids and fats. Its extreme poorness in fat makes it quite unsuitable for continued use; hence it may be regarded as a temporary food suitable for very weakly and young infants with feeble conditions of digestion. It has also a laxative action and should not be given where there is a tendency to diarrhoea.

Proprietary Foods:—Lastly it would not be out of place here to say a few words about proprietary foods. The number of these is legion. Almost all of them are preparations of cereals, and as such almost all contain starch which in some of them remains unaltered while in others it is converted into soluble carbohydrates. It is on the degree of the conversion of this starch that the value of any individual preparation depends. No infant food containing unaltered starch should be given to an infant less than six months old and some babies are better without it even upto nine months.

Another serious defect in these foods is the low proportion of fat and some indeed contain no fat at all. Though in some cases this deficiency is made up by giving them diluted milk, yet the fat value is scarcely greater than that of diluted milk alone. With all these faults however, some of the preparations have their value.

Dried Milk Preparations :—These are often well digested by infants who are unable to digest cow's milk. Allenbury's No. 1 and 2 and Horlick's Malted Milk contain no starch and are well tolerated in cases of gastro-intestinal disorders in infancy. But they should be used only as a temporary food. Nestle's food, though belonging to this category, differs from the above named foods in containing a considerable quantity of unconverted starch. It may be given after the age of 7 or 8 months once or twice a day to accustom the infant gradually to starch containing food.

Completely Malted Cereal Foods :—They can be given at a much earlier age. The best known example of such

a food is Mellin's food. It contains no starch and is intended as an addition to and not as a substitute for cow's milk. The addition of one or two teaspoonfuls of Mellin's food to one or two feeds of the baby every day is useful not only by its own nutritive value but also by facilitating the digestion of milk.

Partially Malted Cereal Foods :—They contain some unconverted starch and Allenbury's No. 3 is one of the best examples of such preparations. They are of some service during the later months of the 1st year and may be cautiously employed to introduce starch into the baby's diet.

Finally a word or two about the values of cold water. Many parents seem to be afraid to give an infant cold water to drink, and one often sees specially, in hot weather, infants crying fretfully from thirst. Pure cold water in small quantities, of course, may be given at any period of infancy and an infant ill with fever should have plenty of cold water to drink.

SHINE YOUR EYES

BY

DR. R. S. AGRAWAL, L. S. M. F.

EYE SPECIALIST, *Ram Eye Charitable Hospital, Bulandshahar, U. P.*

When the eyes are very sensitive to light, one usually obtains immediate relief from the discomfort by the use of an eye-shade. It is a common practice that when the patient goes to an eye doctor, and complains of the discomfort of the strong light of the sun, the doctor will recommend dark glasses, which are usually comfortable in the beginning. Later on, however, the eyes become accustomed to wearing dark glasses, and will feel uncomfortable when the light is good. They are practically in the same condition as they were when they first put them on.

It is a well known fact that the constant protection of the eyes from the sunlight, or from other kinds of light, is followed by weakness or inflammation of the eyes or eyelids. Children living in the dark rooms, where the sun seldom enters, acquire an intolerance for the light. Some of them keep their eyes covered with their hands, or bury their faces in a pillow and do all they possibly can to avoid exposure of their eyes to ordinary light. The human eye needs the light in order to maintain its efficiency. The use of eye shades or other kinds of protections from the light is very injurious to the eyes. I remember one patient who was using very dark glasses for about two and a half years. He was practically blind in the bright light. He went to great many clinics and eye doctors and all they did for him was to give him stronger dark glasses. Instead of being helpful to his weak eyes, the glasses had the effect of making them more sensitive to the light than they had ever been before.

All such patients are soon cured by gazing at the sun. The patient should sit in the sun facing the strong light with eye lids closed. The head should be moved slowly from side to side. At first there may be slight discomfort which usually disappears in a few minutes. Continue for half an hour or longer. Now turn the back to the sun and open the eyes. There should be relief at once. By repetition the benefit becomes greater and more permanent.

After the eyes have improved, and the patient becomes able to open the eyes, he is directed to look as far down as possible, and in this way the pupil is protected by the lower lid. Then by gently lifting the upper lid, only the white part of the eye is exposed, while the sun's rays strike directly upon this part of the eyeball. One needs to caution the patient to avoid looking directly at the sun. This treatment has proved very useful in the cases of conjuntivities, keratitis, ulceration of cornea, iritis, cataract, glaucoma etc.

Many people ask the question, "How long does it take to obtain a sufficient benefit to be noticeable?"

When the sun treatment is employed the improvement in the sight may be demonstrated in a very short time.

The sun treatment improves the vision of all patients who are wearing glasses for the relief of pain, fatigue, and imperfect sight, no matter what kind of glasses are worn or how strong they may be.

It is a good practice to expose the eyes of babies to the direct sunlight not only when they are awake but also when asleep.

Patients with cataract seem to improve more decidedly from the light treatment than from some other kinds of treatment. So often has the light treatment benefitted many kinds of cataract that the use of the light is strongly recommended in all cases.

Looking at the sun may be followed by seeing red, blue, yellow, and other colours for some days. These colours disappear in time. Covering the eyes with palms of the hands, avoiding any pressure of the eyeballs, for ten to fifteen minutes after having the sun-treatment, hastens their disappearance.

LET ME TELL YOU.

BY

DR. T. P. SUNDARAM, L.M.S.,

Madras.

Let me tell you as many have told you before, that if you desire to make most of this short span of life, you must try and keep good health. Unless you inherit the gross weaknesses of your parents or you find that your will is so weak as not to surmount the undesirable influence of your environment, it is quite reasonable to expect every individual to be able to live healthfully. All the same, it is disconcerting to find that most of the ill health that people suffer from are neither due to bad heredity nor to evil environments, but is the result of an avoidable ignorance of the elements

of personal hygiene and of a vague satisfaction of getting on in life "somehow." Human beings, unlike members of the animal and vegetable kingdoms have to strive after health in order to get it.

Secondly, let me tell you that if you sincerely believe that you can maintain good health without having even an elementary idea of the different parts of the human body and their functions, you are under a grave delusion, and that the only way to escape from this delusion is to apply yourselves to the study of the elements of human anatomy and physiology. You can learn all that is required for your practical needs in a few days. This study will not only be interesting and of immense service to you, but will stimulate in you a desire to know further about the " house beautiful."

Let me tell you next, that after deriving some knowledge about the working of the body, you must learn how to keep it clean both externally and internally. The eyes, skin, mouth and bowels should deserve most of your attention as they are the bastions of defence and at the same time the trap doors of defeat of your wonderful fortress. You must also gain some useful knowledge about food, air, light and other things that may help you in leading a healthy life.

Another important point that I have to tell you about is moderation. Briefly, it is the very essence of an healthy existence. If moderatian is kept as a watchword, many errors of a serious nature can be averted. Scarcely any testimony is wanting to show that a healthy life is, guided by moderation in eating, exercise, sexual indulgence, alcohol drinking, smoking etc. It is a thing devoutly to be practised as it is like the bit that curbs the unruly horse.

Let me tell you before I close, one more vital principle of our existence, viz., activity. There is a proverb that iron and skill degenerate if not used constantly. The iron key that is daily used keeps up its polish whereas if it is left idle it rusts in a few days. Verses that are recited every day remain green in the memory, but fade away gradually if not sufficiently repeated. The labourer as a virtue born of necessity develops strong sinews which the brain-worker envies. The operating surgeon who takes a long holiday returns back to his work with a quaking hand. All these only go to show the importance of putting a thing to the use for which it is intended. Every part of the human machinery needs such use, and neglect will certainly lead to atrophy and degeneration. That is why daily exercise is so very essential to keep the body trim. Those who by occupation have perforce to live sedentary lives should nevertheless make it a point to snatch a few minutes every day for active physical movements, as they are the sort of people who easily fall victims to diseases. The active person is the healthy person and the one who will prove to be of most help to society.

PIONEERS OF MEDICINE.

Edward Jenner (1749—1823)

BY

The Hony. Adviser, Public Health, Trivandrum.

Edward Jenner has by his discovery of vaccination protected mankind from the scourge of small-pox which formerly was a dreaded pestilence. Till about 150 years ago, small-pox used to devastate cities and villages, wiping out thousands of lives and crippling and disfiguring myriads of persons.

Jenner, the great physician, was born in 1749 at the village of Eerkely, in Gloucestershire, England. Even as a boy, he showed a marked scientific bent of mind evincing much interest in the study of natural history and medicine. Deciding to be a doctor, he became an apprentice under some surgeons. He settled, after a few years, in his native village and started his career as a medical practitioner. He took up the study of small-pox and assiduously endeavoured to find out how mankind could be saved from the terrors of the disease.

Lord Maccaulay has written of small-pox in the days before Jenner :—

> "Small-pox was always present filling the church-yards with corpses, tormenting with constant fears all whom it had not yet stricken, leaving on those whose lives it spared the hideous traces of its power turning the babe into a change-ling at which the mother shuddered and making the eyes and cheeks of the betrothed maiden objects of horror to the lover."

The only palliative available then against this great danger was to court a mild form of the disease by getting inoculated with the matter taken from the sores or pocks of a patient with a mild case of small-pox, so as to escape a severe attack. But this inoculated small-pox was as contagious as natural small-pox and spread the disease widely around.

Jenner was aware of the experience of farming communities that people who have had cow-pox did not take small-pox when they were exposed to it. He made a study of a great many of such cases and proved the theory by actual experiments and demonstrations.

In 1798 he announced his discovery that vaccination with cow-pox would protect against small-pox. Opponents now rose against him going even to the extent of asserting that vaccination would cause a person to grow horns like a cow. He was nevertheless able to enlist wide-spread support both at home and abroad. Vaccination was welcomed with much enthusiasm and gratitude all over Europe and America and showed striking effects in controlling the outbreak of small-pox. No wonder, honors were heaped in profusion upon Jenner from all parts of the world.

He died on January 26, 1823. The following epitaph inscribed on his tomb is a fitting tribute to the great blessing he has conferred upon humanity :—

> "Within this tomb hath found a resting place
> The great physician of the human race,
> Immortal Jenner ! whose gigantic mind
> Brought life and health to more than
> half mankind."

DR. PEARL PROVES THE FUTILITY OF BIRTH-CONTROL

THE world-wide agitation about birth-control, due chiefly to the efforts of a group of excellent and well meaning women against much opposition, has no doubt been prompted by the best of motives, but some, including the writer have been inclined to the opinion that the birth-control campaign has on the whole done more harm than good. The precious contraceptive information which the women are so eager to impart, offers nothing new among the several tricks devised for thwarting biologic fortuities. The chief devices offered are all old and well known to practically every male old enough to be capable of fatherhood and at least nine-tenths of school girls of high school age. The question has been seriously raised whether the discussion of this question has not tended to lower the standards of sex morality among the present generation.

Birth-control advocates have maintained that the good accomplished in lightening the burdens of poor, overworked and unprivileged mothers more than amply balances off any harm done. The evidence offered in support of these claims for the beneficent value of birth-control methods has lacked the support of statistical data. Recently, Dr. Raymond Pearl, of Johns Hopkins University, one of the world's best-known authorities in biology, has made a critical study of the subject by the aid of a number of trained obstetricians, and has found that the methods advocated by birth control propagandists are well known to women and are largely in use, not only by the so-called higher classes, but by Negro women and women of the labouring classes.

Dr. Pearl made a special study of the effect of birth-conrol upon the birth rate in women of both classes. His carefully collected and analysed statistics, based upon the interrogation of two thousand women, showed that in the case of white women, one-third of whom practiced birth-control methods, the birth rate was lowered about one-twentieth. In Negro women, however, the surprising fact appeared that the birth rate, notwithstanding the use of contraceptive means, was actually increased instead of diminished.

This seeming paradox is explained by the suggestion that the Negro women who practice contraceptive methods are more fertile than average women.

It appears, then, that the effect of birth-control is to lessen the birth rate among the better classes and to increase it among the lower types. In other words, its actual influence is the opposite of the effect claimed in justification of its advocacy by birth-control enthusiasts.

Professor Pearl's penetrating analysis of the great mass of data collected, justify conclusions which cannot be ignored. These findings may well be regarded with dismay by Mrs. Sanger and her disciples.—*Good Health.*

HEALTH TIT-BITS

A NEW YEAR INSPIRATION.

Sunshine and rain, laughter and tears,
All of us find them as we count off the years;
The laughter is sunshine, the tears are the rain,
The one shows our pleasure, the other our pain.

The emblem of sunshine is a smile on your face,
Which brightens your day and quickens your pace;
It costs you but little, and saves you much strife;
It brings out the joy that there is in this life.

The sign of a gloom begins with a frown;
The face will show pain, the spirits cast down;
Dejection will rule, despair takes its root,
Destruction will end with Life as its loot.

The smiles and frowns are not partners in cheer,
Resolve that you'll smile. and you'll shape a career;
A rule that will win, and one that's worth-while,
Is a smile, for a frown, and a smile for a smile.

So let in the sunshine and cast out all the tears,
Face life with your chin up—fight off all your fears
Remember the smiles, forget all the pains,
Will-power conquers while happiness reigns.

—*Jack Lovemore.*—*I. J. M. S.*

* * * * *

FATIGUE AS A FACTOR ON ACCIDENTS:—

(*The Labour Gazette, December, 1930*)

Industrial fatigue is the result of indoor and monotonous work requiring concentration. The proper remedy is better air, ventilation, relaxation, rest periods, diversified work, and mental and physical exercise.—*Abstracts of Current Public Health Literature, March 1931.*

* * * * *

MISSING TEETH AND PREGNANCY.—Doctor Lintz (*Medical Journal and Record*, May 7, 1930) believes that the time will come when every physician will have to be an expert dentist, and every dentist will be required to pass the prescribed medical courses. He stresses the important relation between dental infection and bodily health and brings out several facts which he believes were here-to-fore unknown.

In his analysis of the dental apparatuses of 229 women who came to his office, he found a very definite order in the disappearance of teeth. Upper teeth are lost first. Molars are ordinarily the first to be removed, and canines last; bicuspids and incisors follow in that order.

One hundred seventy-nine of Doctor Lintz's patients had had one or more pregnancies. The fifty non-pregnant women he examined served as a control. One astounding fact is that the pregnant woman had 44 per cent. of her teeth missing, while the non-pregnant woman went about with only 10 per cent. lacking. Forty is the danger time for teeth—most seem to disappear at that age. He concludes that each

pregnancy costs the mother two teeth.—*American Medicine.*

* * * *

SUNSHINE CURES LEPROSY.—Dr. Shaw and his colleagues are also using sun bathing in the treatment of leprosy and with results, according to their report, much superior to those obtained with the famous chaulmoogra oil. Sun-light is known to be the most deadly foe to the tubercle germ. The leprosy germ closely resembles the bacillus tuberculosis and quickly succumbs when exposed to the brilliant sunshine of the Chliean desert.

The ingenious sun bathing arrangements devised by Drs. Ayora and Ponce of Quito are thus described:

> "They had arranged circular plantings of shrubs in the grounds surrounding their clinic. There was an opening through which the bed of the patient could be passed. The interior of this green circle formed a cubicle in which the patient could lie naked with the whole body exposed to the healing rays of the equatorial sun."

In recent years, similar arrangements for the treatment of tubercular and other cases by means of natural sunlight have been made available at Miami Beach and other places in south Florida, chiefly through the beneficent enterprise of Dr. Adams.—*Good Health.*

* * * *

THE HEART AND TOBACCO.—Every year three hundred thousand persons die of disease of the heart and blood vessels, and five times as many are chronic invalids and constantly menaced with death from the same cause. This is now the chief cause of death in this country. And every year the death rate from failure of the blood-circulating organs is increasing, the natural result of the growth of the tobacco habit and the coffee habit which poison the heart and wear out the kidneys.—*Good Health.*

* * * *

THE INFLUENCE OF FOOD ON THE DURATION OF LIFE.—This is perhaps the most interesting point that has been touched upon by the research committee, since all physiologists agree that food is one of the utmost importance in prolonging or shortening human life. The records had to decide who have a better chance to live longer, the meat-eaters or the vegetarians. The following figures obtained during the research among our centenarians give the reply to this question;

118 centenarians have lived on vegetable food; 5 on meat food; 35 on mixed food.—*Good Health.*

* * * *

ODD LINES (on Syphilis).—*The Urologic and Cutaneous Review, February, 1931.*—All things have an end except the fears of a syphilitic.

Whale away at syphilis when it's new; coox it when it's old.

Undertreat syphilis in its early stages and you swell the ranks of incompetents and public charges.

Believe every sore on the penis to be a chancre until you prove it to be something else.

An apple a day may keep the doctor away but a "peach" some day will bring him back.

To have the fullest respect for syphilis you must have practised medicine for at least twenty years.

Make your syphilitic patients read the 38th Psalm; they'll be better men for it and better patients too. And, by the way, read it yourself.